

09/381 323 #  
420 Rec'd PCT/PTO 16 SEP 1999  
TJS  
R03C  
DSS

-1-

BOX PCT

IN THE UNITED STATES DESIGNATED/ELECTED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5 **INFORMATION DISCLOSURE STATEMENT**  
**ACCOMPANYING THE FILING OF AN APPLICATION**

APPLICANT(S): Thomas Aeugle et al.  
ATTORNEY DOCKET NO.: P99,1696  
INTERNATIONAL APPLICATION NO.: PCT/EP98/01405  
10 INTERNATIONAL FILING DATE: 11 March 1998  
INVENTION: "METHOD FOR THE PRODUCTION OF A VERTICAL MOS  
TRANSISTOR"

Assistant Commissioner for Patents  
Washington, D.C. 20231

15 SIR:

In accordance with the provisions of 37 C.F.R. § 1.56, Applicant requests that citation and examination of the following references be made during the course of examination of the above-referenced application for United States Letters Patent.

I. **SUBMITTED REFERENCES**

20 AA United States Patent No. 5,208,172  
AB United States Patent No. 5,545,586  
AC United States Patent No. 5,376,562  
AL European Application No. 268 941  
AM European Application No. 430 514  
25 AN German Application No. 196 21 244  
AR R. Loo et al., "Vertical Si p-MOS transistor selectively grown by low pressure chemical vapour deposition", Thin Solid Films, Vol. 294, p. 267 (1997).  
AS D. Behammer, "Selectively grown vertical Si-p MOS transistor with short channel lengths", Electronics Letters, Vol. 32, No. 4, p. 406 (15 February 1996).  
30 AT L. Risch et al., "Vertical MOS Transistors with 70nm Channel Length", ESSDERC 1995, p. 101.

-2- 420 Rec'd PCT/PTO 16 SEP 1999

AU "Roadmap for Semiconductors", Solid State Technology, Vol. 3, pp. 42 (February 1995).

AV A. Hori et al., "A 0.05µm-CMOS with Ultra Shallow Source/Drain Junctions Fabricated by 5KeV Ion Implantation and Rapid Thermal Annealing", IEDM 94, p. 485.

AW H. Hu et al., "Channel and Source/Drain Engineering in High-Performance Sub-0.1 µm NMOSFETs Using X-Ray Lithography", 1994 Symposium on VLSI Technology Digest of Technical Papers, p. 17.

AX L. Vescan, "Radiative Recombination in SiGe/Si Dots and Wires Selectively Grown by LPCVD", Material Science and Engineering, Vol. 28, p. 173 (1994).

## II. EXPLANATION OF RELEVANCE

References AA, AB, AR and AS were cited during earlier PCT examination proceedings. Since references AA, AB, AR and AS are in English, no further commentary concerning their teachings is necessary.

References AC, AL, AM, AN and AT were cited for the reasons noted in a Search Report conducted by the German Patent Office in a counterpart foreign application. A copy of the Search Report is enclosed for the Examiner's review. Reference AL, which is in German, discloses a MOSFET structure with flat source drain zones. Reference AN, which is in German, discloses a semiconductor component, such as a vertical MOS transistor. Since references AC, AM and AT are in English, no further commentary concerning their teachings is necessary.

References AT, AU, AV, AW and AX were cited for the reasons noted in the Applicants' specification. Since references AT, AU, AV, AW and AX are in English, no further commentary concerning their teachings is necessary.

None of the above references discloses or suggests a method for the production of a vertical MOS transistor as disclosed in the present invention.

Copies of each of the above references together with Form 1449 are submitted herewith in accordance with 37 C.F.R. §1.98. The non-English references AL and AN are accompanied by English-language Derwent abstracts. Except as provided, the undersigned does not possess English translations of the non-English references.

09/381323

420 Rec'd PCT/PTO 16 SEP 1999

-3-

This Information Disclosure Statement is being submitted simultaneously with the filing of the present application, and is therefore in compliance with 37 C.F.R. §1.97(b) and no fee is necessary.

All claims of the application are patentable over the teachings of the above  
5 references, taken singly or in combination. Early consideration of the application is therefore respectfully requested.

Submitted by,

Steven H. Noll  
(Reg. 28,982)

Steven H. Noll

HILL & SIMPSON

A Professional Corporation

85<sup>th</sup> Floor - Sears Tower

Chicago, Illinois 60606

Telephone: 312/876-0200 - Ext. 3899

Attorneys for Applicant(s)

10

15

<p style="text-align: center;">37 CFR 1.501 INFORMATION DISCLOSURE STATEMENT IN A PATENT (use several sheets if necessary)</p>					Docket No. <b>P99,1696</b>	Serial No.	
					Applicants <b>Thomas Aeugle, et al.</b>		
					Filing Date	Group Art Unit	
<b>U.S. PATENT DOCUMENTS</b>							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If appropriate
	AA	5,208,172	05-04-93	J. Fitch, et al.			
	AB	5,545,586	08-13-96	R. Koh			
	AC	5,376,562	12-27-94	J. Fitch, et al.			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
<b>FOREIGN PATENT DOCUMENTS</b>							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes      No
	AL	EP 0 268 941	06-01-88	Europe			Abstract      X
	AM	EP 0 430 514	06-05-91	Europe			X
	AN	DE 196 21 244	11-14-96	Germany			Abstract      X
	AO						
	AP						
	AQ						
<b>OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)</b>							
	AR	R. Loo, et al., "Vertical Si p-MOS transistor selectively grown by low pressure chemical vapour deposition", Thin Solid Films, Vol. 294, p. 267 (1997)					
	AS	D. Behammer, "Selectively grown vertical Si-p MOS transistor with short channel lengths", Electronics Letters, Vol. 32, No. 4, p. 406 (15 February 1996)					
	AT	L. Risch, et al., "Vertical MOS Transistors with 70 nm Channel Length", ESSDERC 1995, p. 101					
	AU	"Roadmap for Semiconductors", Solid State Technology, Vol. 3, February 1995, pp. 42					
	AV	A. Hori, et al., "A 0.05 μm-CMOS with Ultra Shallow Source/Drain Junctions Fabricated by SKeV Ion Implantation and Rapid Thermal Annealing", IEDM 94 p. 485					
	AW	H. Hu, et al., "Channel and Source/Drain Engineering in High-Performance Sub-0.1μm NMOSFETs Using X-Ray Lithography", 1994 Symposium on VLSI Technology Digest of Technical Papers, p. 17					
	AX	L. Vescan, "Radiative Recombination in SiGe/Si Dots and Wires Selectively Grown by LPCVD", Material Science and Engineering, Vol. 28, p. 173 (1994)					
Examiner			Date Considered				
<b>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</b>							